

A new species of *Oncocephalus* (Heteroptera, Reduviidae, Stenopodainae) from Japan¹

T. ISHIKAWA, W. CAI & M. TOMOKUNI

Abstract: A new reduviid species of the genus *Oncocephalus* is described from Japan under the name *O. heissi* nov.sp. This species is easily distinguished from its congeners by a combination of the following characters: dark brown pronotum with a pair of longitudinal, pale stripes; the protrochanter with a large spine ventrodistally; mostly dark brown hemelytron with vein R in corium conspicuously pale yellow.

Key words: Japan; new species; *Oncocephalus*; Reduviidae; Stenopodainae.

Introduction

Oncocephalus KLUG is the largest genus in the subfamily Stenopodainae, comprising approximately 200 species from the Old World and a few additional New World species (MALDONADO CAPRILES 1990). Diagnostic characters of this genus may be summarized as follows: the head with no conspicuous tubercles or spines, the rostral segments I and II subequal in length, the profemur armed with a row of spines and setiferous tubercles ventrally, and the three-segmented protarsus.

Eight species of *Oncocephalus* have been recorded from Japan (PUTSHKOV & PUTSHKOV 1996; ISHIKAWA et al. 2005). Their extreme resemblance, which may also result in misidentification, asks for a comprehensive review of their taxonomy. In our recent survey of the Japanese Reduviidae, we found a remarkable, unknown species of *Oncocephalus*, which we will describe herein as a new species under the name *Oncocephalus heissi* nov.sp.

Material and Methods

Male and female genitalia were soaked in hot 10% KOH solution for about five

minutes, and the endosoma of the male genitalia was pulled out of the phallosoma with forceps. Illustrations were prepared using a stereoscopic microscope and a compound microscope with the aid of a drawing tube. After drawing, the genitalia were preserved in small vials with glycerin and pinned with the respective specimens.

Depositories of type material are abbreviated as follows: CAU, Department of Entomology, China Agricultural University, Beijing, China; NIAES, Laboratory of Insect Systematics, National Institute of Agro-Environmental Science, Tsukuba, Japan; NSMT, Department Zoology, National Science Museum, Tokyo, Japan; OMM, Omogo Mountain Museum, Kumakôgen-chô, Ehime Pref., Japan; TUA, Laboratory of Insect Resources, Faculty of Agriculture, Tokyo University of Agriculture, Atsugi, Japan.

Taxonomy

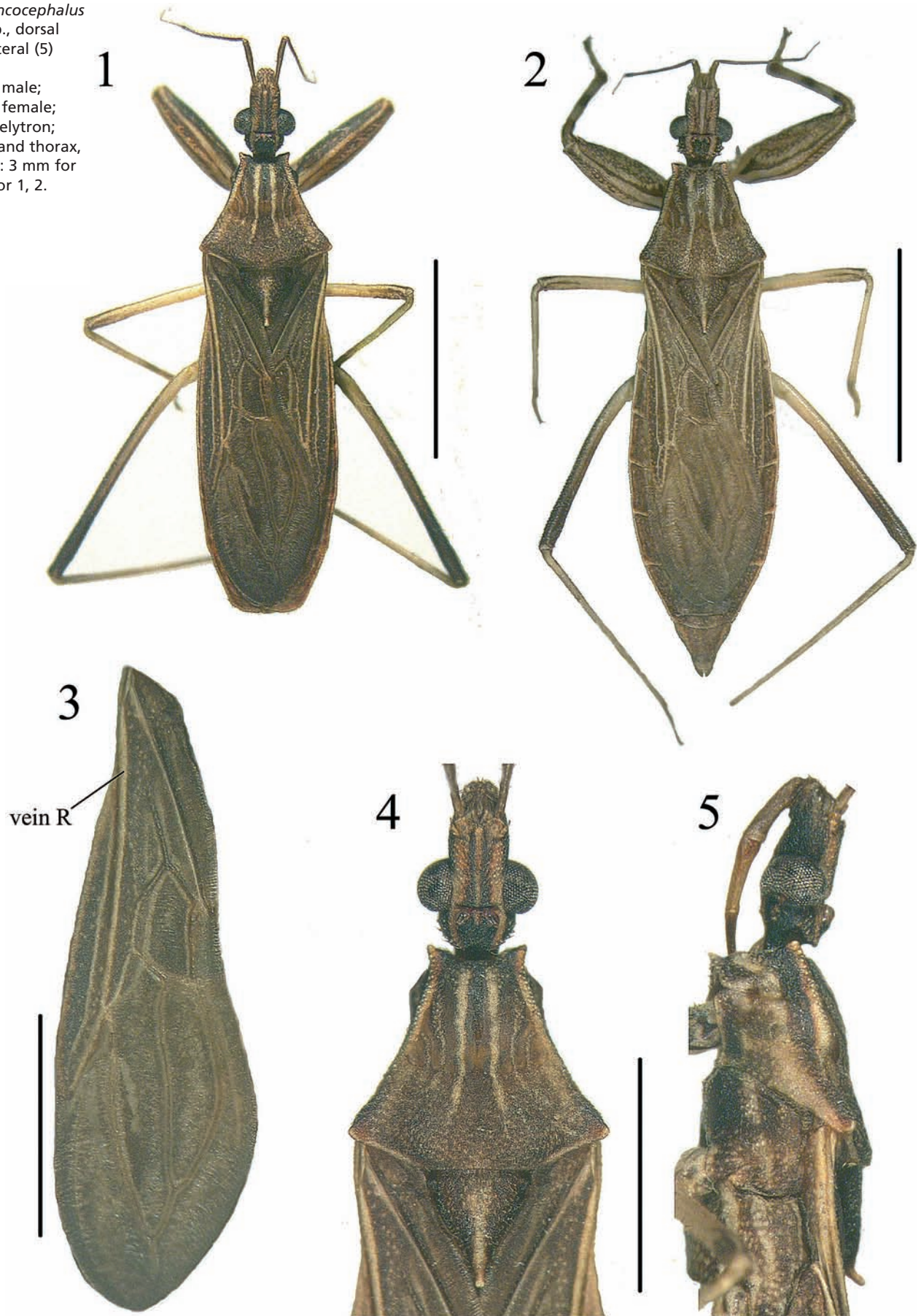
Oncocephalus heissi nov.sp. (Figs 1-18)

Type series: Holotype: ♂ (NSMT-I-He 4707, Figs 1, 3-8, 12), [JAPAN Naze-shi, Amami-ôshima Is., the Ryûkyû Islands, 4. VI. 2004, K. Takahashi] (NSMT). Paratypes: 1 ♀, [V-28-1952 Ôsumi, Sa-

¹ This paper is dedicated to commemorate the 70th birthday of our intimate friend Ernst Heiss.

Figs 1-5: *Oncocephalus heissi* nov.sp., dorsal (1-4) and lateral (5) views.

(1) Habitus, male;
(2) Habitus, female;
(3) left hemelytron;
(4, 5) head and thorax, male. Scales: 3 mm for 3-5; 5 mm for 1, 2.



ta H. Hasegawa] (NIAES); 1♂, [IV-29-1952 Ôsumi, Sata H. Hasegawa] (NIAES); 1♀ (Fig. 13), [[JAPAN: Kyushu] Kagoshima Pref. Sata, Oodomari 25. VI. 2003 Hiraku Yoshitake] (TUA); 1♂ (Fig. 10), [[JAPAN] Hentona, Okinawa-hontô Is., the Ryûkyû Islands, 14. IX. 2001, S. Inada] (CAU); 1♀, [Shuri 21. 5. 1961 O. Nakachi], [12] (NIAES); 1♂, [V 12, 1956 Yogi Okinawa Kôsei Iha leg.], [61°] (NIAES); 1♀ (Fig. 18), [[JAPAN] Shiramizu, Ishigaki Is., the Ryûkyû Islands, 23. V. 2002, M. Takai] (TUA); 1♀, [III 13, 1973 Hirai Ishigaki C. Ishigaki Is. H. Hasegawa] (NIAES); 1♂ (Figs 14-17), [Ishigaki-jima Okinawa-nôshi Yaeyamashisho Tôka] (written in Japanese characters) (NIAES); 1♀, [OKINAWA: JAPAN Oozato, Ishigaki Is. 26. II. 2004 (Shûrei-yôchû-saishû) 3. V. 2004 (Uka) Shinji Yano leg.] (written in Japanese characters within parentheses) (OMM); 1♂, [[JAPAN] Hirano, Ishigaki Is., the Ryûkyû Islands, V. 2001, M. Takai] (TUA); 1♀, [[JAPAN] Ishigaki Is., the Ryûkyû Islands, V. 2002, M. Takai] (CAU); 1♀ (Figs 2, 9, 11), [[JAPAN] Komi, Iriomote Is., the Ryukyus, 2. III. 2002, T. Ishikawa leg.] (TUA).

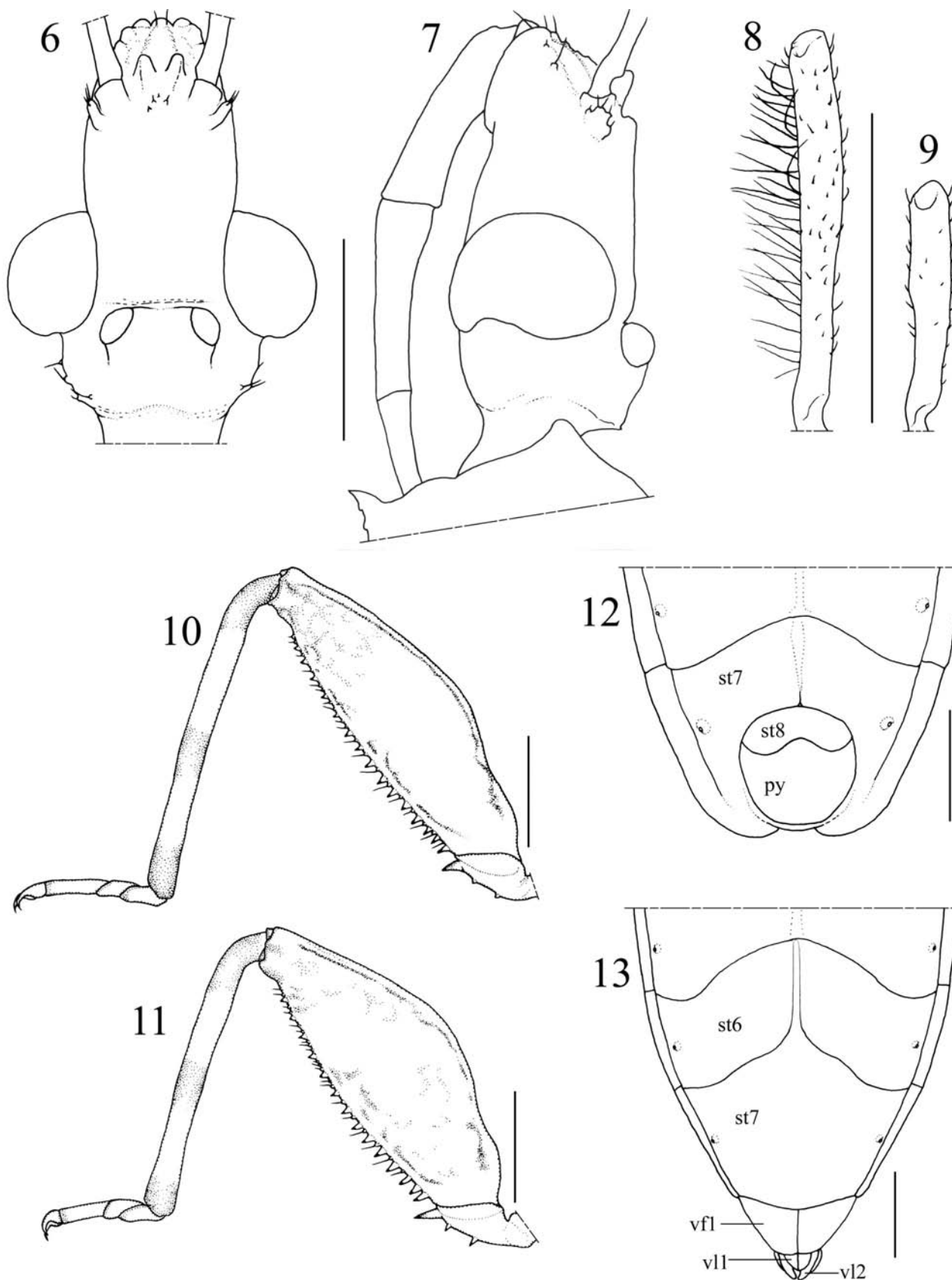
Diagnosis: Antennal segment I covered ventrally with long, erect setae in male; rostral segments I and II brownish yellow; pronotum dark brown with a pair of longitudinal, pale stripes; anterior pronotal lobe brownish yellow along lateral margins, lacking tubercle posterolaterally; protrochanter with a large spine ventrodistally; profemur with a row of about 13 spines ventrally; hemelytron mostly dark brown with vein R in corium conspicuously pale yellow; and endosoma of phallus with a pair of tufts of microtrichia dorsobasally. Recognized among the species of *Oncocephalus* known from Japan by the combination of the following characters: rostral segments I and II brownish yellow, anterior pronotal lobe lacking tubercle posterolaterally, hemelytron mostly dark brown with vein R in corium conspicuously pale yellow.

Description:

Male: (holotype). Body (Fig. 1) mostly dark brown. Head (Figs 4, 5) brownish yellow with red tinge on dorsum and base of venter, with a pair of longitudinal, blackish stripes dorsally. Antennae brownish yellow, with segments III and IV and apex of segment II dark. Rostral segments I and II brownish yellow and segment III dark (Fig. 5). Pronotum (Fig. 4) brownish yellow around border of anterior and posterior

lobes and along lateral margins of anterior lobe, with a pair of longitudinal, pale stripes running from near anterior margin to middle of posterior lobe. Propleuron (Fig. 5) with longitudinal, brownish yellow stripe, and with yellowish spot on acetabulum. Scutellum (Fig. 4) with brownish yellow stripe along meson, tinged with red on apical spine. Meso- and metapleura (Fig. 5) mottled with yellowish spots and incomplete liner markings. Legs (Figs 1, 2) brownish yellow. Profemur mostly dark brown on inner surface (Fig. 2), with several dark brown, irregular markings on outer surface (Fig. 10), and with 2 or 3 dark brown, liner markings dorsally (Figs 1, 10); protibia (Fig. 10) with 3 brownish annulations near middle and at both ends; protarsus (Fig. 10) darkened near apex of segment III. Mesofemur (Figs 1, 2) with 2 or 3 dark brown, liner markings on apical part; mesotibia and mesotarsus darkened apically. Metafemur (Figs 1, 2) dark brown on apical one-third, with 2 dark brown, liner markings laterally in whole length; metatibia darkened apically; metatarsus darkened near apex of each segment. Hemelytron (Fig. 3) dark brown, mottled with many small, yellowish spots on corium and irregular yellowish brown markings on membrane; corial costal margin brownish yellow; vein R conspicuously pale yellow in corium (Fig. 3). Abdomen brown, mottled with irregular dark markings; a pair of longitudinal dark brown stripes present on venter.

Head (Figs 6, 7) about 1.4 times as long as width across eyes, 0.8 times as long as pronotum, furnished with several setiferous tubercles intermixed with short, curved setae; anteoculus about 1.7 times as long as postoculus, with laterally flattened setiferous tubercle near each antenniferous tubercle, this setiferous tubercle with 5 or 6 setae apically. Eye 0.7 times as wide as interocular space in dorsal view (Fig. 6), slightly exceeding level of ventral surface of head in lateral view (Fig. 7), sparsely covered with very short setae. Antennal segment I (Fig. 8) covered with short, suberect setae throughout and long, erect setae on ventral and interolateral surfaces, longest setae of them about 1.8 times as long as maximum width of segment I; segment II twice as long as segment I, covered with long, erect setae; segments III and IV



Figs 6-13: *Oncocephalus heissi* nov.sp., setae omitted in 6, 7, and 10-13, except for those on setiferous tubercles. (6, 7) Head, male, dorsal (6) and lateral (7) views; (8, 9) antennal segment I, male (8) and female (9), lateral view; (10, 11) proleg, male (10) and female (11), lateral view; (12, 13) apical part of abdomen, male (12) and female (13), ventral view. Abbreviations: py, pygophore; st6, sternite VI; st7, sternite VII; st8, sternite VIII; vf1, valvifer I; vl1, valvula I; vl2, valvula II. Scales: 1 mm.

covered with long, erect setae intermixed with short, suberect setae. Rostrum covered sparsely with short, suberect setae; proportional lengths of segments I to III 5: 5: 3.

Pronotum (Fig. 4) 0.8 times as long as humeral width, obtuse at apices of anterior and humeral angles, covered with short, decumbent setae; anterior lobe about 1.2 times as long as posterior lobe, without conspicuous tubercles posterolaterally; posterior lobe granulate, with posterolateral and posterior margins nearly straight. Prosternum spinosely protuberant at anterior angles (Fig. 7). Scutellum (Fig. 4) with tubercle at base of each lateral margin; apical spine curved upwards, tip blunt. Proleg (Fig. 10) covered with short, suberect setae; coxa with several setiferous tubercles; trochanter armed with 1 large spine ventrodistally and 3 small spines ventrally; femur about 3.6 times as long as its maximum width, with row of 13 spines and about 20 setiferous tubercles ventrally, these spines much smaller than ventrodistal spine of trochanter; tibia about 12 times as long as its maximum width. Meso- and metalegs slender, covered with short, suberect setae. Hemelytron nearly reaching apex of abdomen (Fig. 1), covered with very short setae on corium.

Abdomen beneath carinate along meson from segment II to VI, covered with short, decumbent setae; posterior margin of segment VII narrowly but distinctly concave at middle (Fig. 12).

Genital structure (paratype from Ishigaki Is.). Pygophore (Figs 14, 15) ovoid in dorsal view, weakly compressed dorsoventrally, lacking posterior process, with posterior margin rounded. Paramere (Fig. 16) slender, weakly curved, compressed dorsoventrally in middle, rounded at apex, covered with erect setae on dorsal and lateral surfaces. Basal plates of phallus (Fig. 17) stout; phallosoma (Fig. 17) weakly sclerotized from dorsal to lateral surfaces; struts (Fig. 17) tapering distad, with projection at base of each side; endosoma (Fig. 17) with minute sclerites ventrally and a pair of tufts of microtrichia dorsobasally.

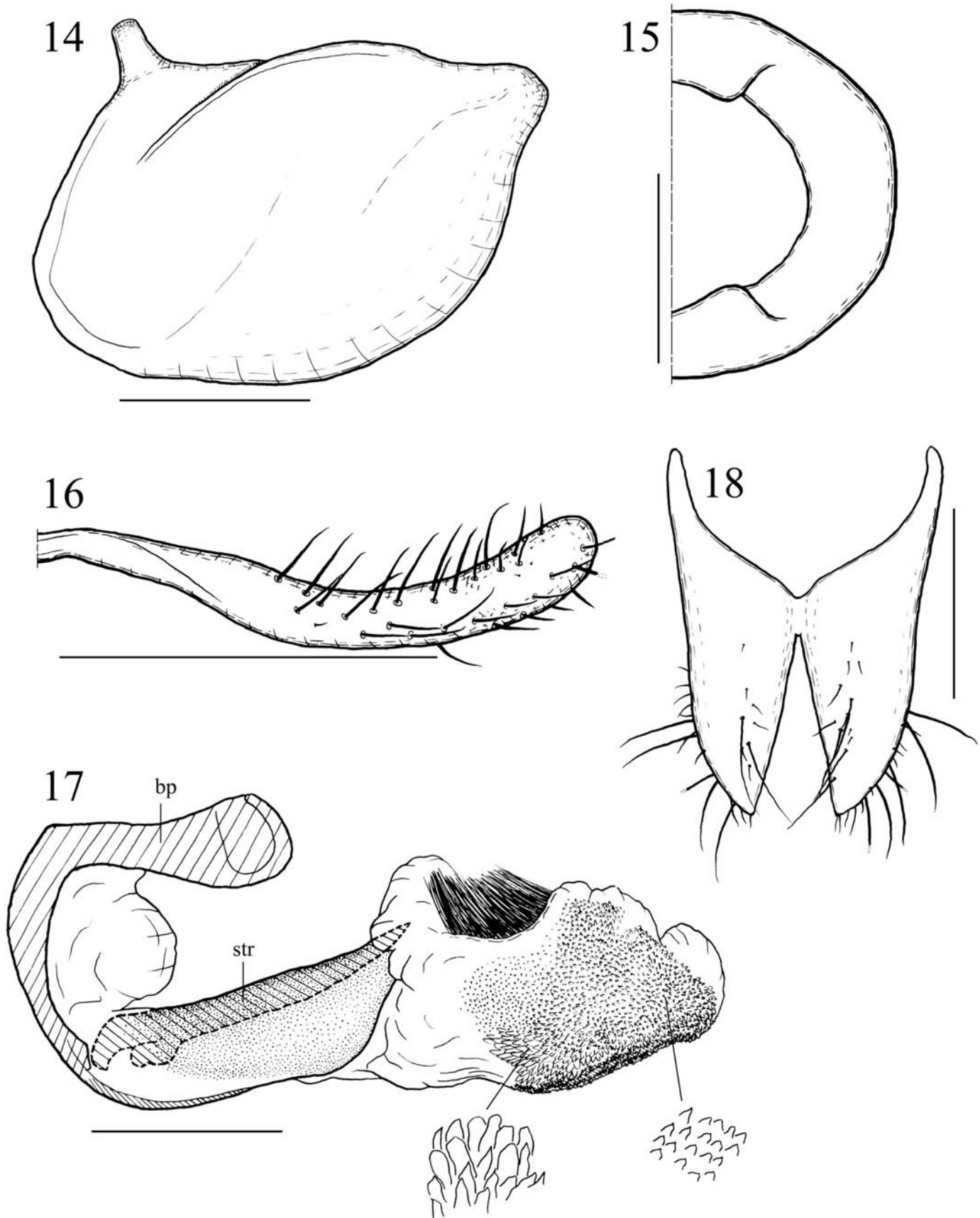
Female: (paratypes). Similar to male in general habitus (Fig. 2). Head about 1.6 times as long as width across eyes. Eye just

reaching level of ventral surface of head in lateral view. Antennal segment I (Fig. 9) covered with short, suberect setae throughout and several long, erect setae only on interolateral surface; segment II 2.5 times as long as segment I, covered with short, suberect setae throughout and long, erect setae in apical one-fourth. Anterior pronotal lobe about 1.3 times as long as posterior lobe. Profemur about 2.9 times as long as its maximum width (Fig. 11). Hemelytron reaching near posterior margin of abdominal segment VII (Fig. 2). Abdomen beneath carinate along meson from segment II to V; posterior margin of sternite VI deeply incised at middle, this incision almost reaching anterior margin of sternite VI (Fig. 13). Valvifer I broad (Fig. 13); valvula I acute at apex (Fig. 13); valvula II slender, obtuse at apex (Fig. 13); styloides (Fig. 18) deeply incised medially, covered with short and long setae in apical half.

Measurements [in mm, ♂ (n=6) / ♀ (n=8), holotype in parentheses]. Body length 12.20-13.30/13.25-14.25 (13.30). Head length including neck 2.04-2.17/2.14-2.23 (2.17); width across eyes 1.44-1.52/1.40-1.46 (1.52); interocular space 0.56-0.63/0.60-0.63 (0.63). Lengths of antennal segments I and II 1.33-1.38/0.80-0.84 (1.38) and 2.37-2.60/1.92-2.08 (2.60). Lengths of rostral segments I to III 0.95-1.05/1.03-1.05 (1.05), 0.86-0.98/0.88-0.91 (0.98), and 0.59-0.63/0.59-0.60 (0.63), respectively. Pronotum length 2.45-2.72/2.43-2.57 (2.72); width across humeri 2.90-3.27/2.80-2.95 (3.27). Hemelytron length 8.30-8.75/8.15-8.20 (8.75). Lengths of femur and tibia of proleg 3.15-3.58/3.15-3.32 (3.58) and 2.90-3.23/2.67-2.87 (3.23), of mesoleg 3.18-3.58/3.13-3.32 (3.58) and 3.06-3.44/2.82-2.98 (3.44), of metaleg 5.43-6.17/5.13-5.27 (6.17) and 6.10-6.73/5.26-5.43 (6.73). Abdomen length 6.60-7.15/7.60-8.10 (7.15).

Distribution: Japan: Kyûshû (Cape Sata), Ryûkyû Islands (Amami-ôshima Is., Okinawa Is., Ishigaki Is., Iriomote Is.).

Remarks: The number of spines forming a row on the ventral surface of the profemur is rather stable between males and females, as well as between left and right femora of an individual.



Figs 14-18: *Oncocephalus heissi* nov.sp., setae omitted in 14 and 15. **(14)** Pygophore, lateral view; **(15)** apical part of pygophore, dorsal view; **(16)** left paramere, dorsal view; **(17)** phallus, lateral view; **(18)** styloides, dorsal view. Abbreviations: bp, basal plates; str, struts. Scales: 0.5 mm.

In general habitus this new species is similar to *Oncocephalus femoratus* REUTER 1882 known from the Philippines, Japan, Korea, and the Russian Far East; however, it can be distinguished from the latter by the rostral segment II entirely brownish yellow (Fig. 5) (in *O. femoratus*, dark brown at least on apical half); the anterior pronotal lobe lacking conspicuous tubercle posterolaterally (Fig. 4) (vs. with a tubercle posterolaterally); the ventrodistal spine of the pro-trochanter much larger than those in the row of profemur venter (Figs 10, 11) (vs. same length); and the hemelytra mostly dark brown without black markings (Fig. 3) (vs. brownish yellow with black markings). This new species is also separable from *Oncocephalus impudicus* REUTER 1882 distributed in tropical Asia by the male antennal segment I covered with long, erect setae ventrally (Fig. 8) (in *O. impudicus*, lacking such setae); the rostral segments I and II brownish yellow (Fig. 5) (vs. dark brown); the row of spines on the profemur venter consisting of about 13 spines (Figs 10, 11) (vs. about seven spines); the meso- and metatibiae lacking dark annulations (vs. with dark annulations); and the hemelytra mostly dark brown, with no black markings (Fig. 3) (vs. brownish yellow with black markings).

Oncocephalus heissi nov.sp. has been collected in dry grasslands on Ishigaki Island and Iriomote Island, the Ryūkyū Islands, Japan. The collecting data suggest that the adults of this species emerge early in summer and survive until early spring of the following year. Details of the biology of this species are still unknown.

Acknowledgements

We thank Mikio Takai (Kochi Prefectural Agriculture Research Center), Keiichi Takahashi (Ushiku City), Yukinobu Nakatani (NIAES), Shinji Yano (OMM), and Hiraku Yoshitake (University of Tokyo) for providing the material used in this study. This research was partly supported financially by the Academic Frontier Cooperative Research Project, Tokyo University of Agriculture (2004-2009, Ishikawa).

Zusammenfassung

Eine neue Reduviiden-Art aus der Gattung *Oncocephalus* wird aus Japan unter dem Namen *O. heissi* nov.sp. beschrieben. Die Art ist von verwandten Arten durch die Kombination folgender Merkmale einfach zu unterscheiden: dunkelbraunes Pronotum mit einem Paar länglicher, heller Streifen; Protrochanter mit einem großen ventrodistalen Dorn; Hemielytren überwiegend dunkelbraun mit hellgelbem Radius im Corium.

References

- ISHIKAWA T., CAI W. & M. TOMOKUNI (2005): Assassin bugs (Heteroptera, Reduviidae) newly recorded from Japan. — *Jpn. J. Syst. Ent.* **11**: 263-268.
- MALDONADO CAPRILES J. (1990): Systematic catalogue of the Reduviidae of the World (Insecta: Heteroptera). — *Caribbean J. Sci., Special edition*: x + 1-694.
- PUTSHKOV P.V. & V.G. PUTSHKOV (1996): Family Reduviidae LATREILLE, 1807 – assassin-bugs. — In: AUKEMA B. & C. RIEGER (Eds), *Catalogue of the Heteroptera of the Palaearctic Region. Vol. 2*. Netherlands Entomol. Soc., Amsterdam: 148-265.

Addresses of the Authors:

Dr. Tadashi ISHIKAWA
Laboratory of Insect Resources
Faculty of Agriculture
Tokyo University of Agriculture
Funako 1737
Atsugi-shi, Kanagawa
243-0034 Japan
E-Mail: kr-chu@nodai.ac.jp

Dr. Wanzhi CAI
Department of Entomology
China Agricultural University
Yuanmingyuan West Road
Beijing
100094 China
E-Mail: caiwz@cau.edu.cn

Dr. Masaaki TOMOKUNI
Department of Zoology
National Science Museum, Tokyo
3-23-1 Hyakunin-cho
Shinjuku-ku, Tokyo
169-0073 Japan
E-Mail: tomokuni@kahaku.go.jp